DOT MATRIX PRINTER

# RP-35

# User's Manual

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# SAFETY INSTRUCTIONS
## which must be strictly observed !

- To prevent personal injury or property damage, the following shall be strictly observed.
- The degree of possible injury and damage due to incorrect use or improperly following instructions is described below.

| | |
|---|---|
| Warning | Indicates a situation which, if not observed and handled properly, could result in death or serious injury. |
| Caution | Indicates a situation which, if not observed and handled properly, could result in injury. |

### Meaning of symbols

This symbol indicates that something must be handled carefully.

This symbol indicates something that must not be done.

This symbol indicates something that must be done.

## Warning

Never perform the following. If not avoided, these may cause damage or trouble to the printer or cause the printer to overheat and release smoke and cause burns or an electrical shock. If the printer is damaged or is malfunctioning, be sure to turn the printer off immediately and remove the power cord from the outlet, then consult our service personnel.

- Do not place the printer in a poorly ventilated area, or shut off the air vent of the printer.
- Do not place the printer where chemical reactions occur, such as in laboratories or where air is mixed with salt or gas.
- Do not use a power voltage or frequency other than those specified.
- Do not plug/unplug the power cord or attach/detach the interface cable by simply grabbing the power cord or interface cable. Do not pull or carry the printer when the tension of the power cord or interface cable is increased.
- Do not drop or put foreign matter such as clips and pins into the printer. This may cause problems.
- Do not plug the power cord into an outlet with many loads.
- Do not spill drinks such as tea, coffee and juice on the printer or spray insecticide on the printer. If drink or water is spilled, first be sure to turn the power off and remove the power cord from the outlet, then consult our service personnel.
- Do not disassemble or modify the printer.
- Do not use this printer when any safety switch built into the product has been cancelled without solving the problem that activated it. If you do, there is a danger that the printer will malfunction, injuring, burning, or electrocuting you.

Discard or safely store the plastic packing bag. This bag should be kept away from children. If the bag is pulled over a child' s head, it may cause suffocation.

## General Precautions

### Caution

- Prior to operation, read the safety instructions carefully and observe them.
- Do not drop or put foreign matter such as clips and pins into the printer. This may cause problems.
- Be careful when moving or carrying the printer. Dropping the printer may cause injury or property damage.
- If this printer is accidentally dropped, be sure to notify a service person; do not try to repair it yourself.
- Do not open the printer during printing.
- When cleaning the surface of the printer case, do not use the cloth that is soaked in thinner, trichloroethylene, benzine, ketone or similar chemicals.
- Do not use the printer where there is a lot of oil, iron particles, or dust.
- Do not spill liquids or spray insecticide on the printer.
- Do not jolt or impact to the printer by stepping on, dropping or hitting the printer.
- Operate the control panel properly. A careless, rough handling may cause problems or malfunction. Do not use such sharp-edged tool as a ballpoint pen for operation.
- Be careful of the edges of the plates so injury or property damage is possible.
- If a problem occurs during printing, stop the printer immediately and unplug the power cord from the outlet.
- When printer trouble occurs, do not try to dissemble it. Instead, consult our service personnel.

## Precautions When Installing the Printer

### Caution

- Prior to operation, read the safety instructions carefully and observe them.
- Do not use or store the printer near fire, excessive moisture, in direct sunlight, near an air conditioner or heater or other source of unusually humidity or excessive dust.
- Do not place the printer where chemical reactions occur, such as in a laboratory.
- Do not place the printer where air is mixed with salt or gas.
- The printer must sit on a firm, level surface where there is ample ventilation. Never allow the printer's air vent to be blocked by an object.
- Do not put anything on the top of printer.
- Do not place the printer near a radio or television, and do not use the same wall outlet for the printer and radio or television. Radio or television reception could be adversely affected.
- Do not put anything on the power cord or step on it.
- Do not drag or carry the printer with the power cord or interface cable.
- Avoid plugging the power cord into an outlet with many loads.
- Do not bundle the power cord when inserting the plug.
- Always grip the plug housing, not the cord, to plug/unplug the power cord.
- Make certain the power is turned off before connecting/disconnecting the interface cable.
- Avoid lengthening the signal cable or connecting it to any noise-producing device. If it is unavoidable, use the shielded cable or twisted pair for each signal.
- Place the printer near the outlet where the power cord can be unplugged easily to shut off power.
- Use the AC outlet that accepts a three-pronged plug. Otherwise, static electricity may be generated and there will be danger of electric shock.
- Do not carry it holding the cover.
  Doing this might break its mechanisms or cause it to malfunction.

Thank you very much for purchasing the TVSE Dot Matrix Printer RP-35.
This printer is a dot matrix printer developed for use with various kinds of data communication terminals, POS terminals, and kitchen printers.
It can be used for a wide range of applications thanks to its rich selection of functions.

# Features

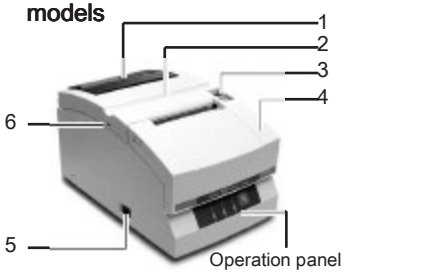
- Compact design
- A paper drop in mechanism that simplifies paper loading
- High speed printing to a maximum of 240cps
- Multiple copy printing (original form + 2 copies)
- Input buffer available
- Black mark sensor mechanism
- Versatile printing layout using the page mode
- Logo data or text data prepared by the user can be stored in its user memory
- Built-in drawer kick-out interface
- Optional auto-cutter (full cut/partial cut)
- Capacity for paper with widths of 76.2/69.5/57.5mm
- Parallel (IEEE and Centronics compliant) interface is available as a factory option
- Selection of functions diversified by its operation panel (Soft SW setting mode)
- Can be wall mounted (optional)
- Built-in buzzer
- Built-in or external AC adapter types available
- Dual color printing (red/black)

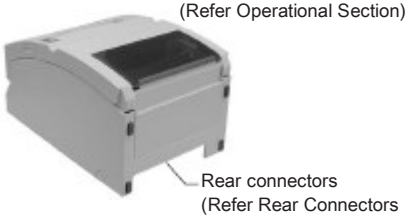
# Names and Functions of Parts

## Exterior

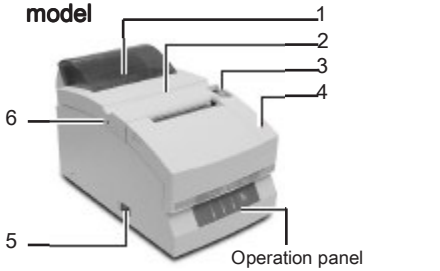
### AC adapter type

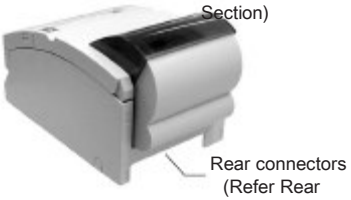
**Standard and auto cutter equipped models**




**Auto cutter and rewinder equipped model**




### Built-in AC adapter type

1 Paper check window
It can be used to check the amount of paper left on the roll.

2 Rear cover
It can be opened to set or to replace a paper roll.

3 Rear cover open lever
It is a lever used to open the rear cover. Pull the lever towards you to open the rear cover.

4 Front cover
It can be opened to set or replace the ribbon cassette.

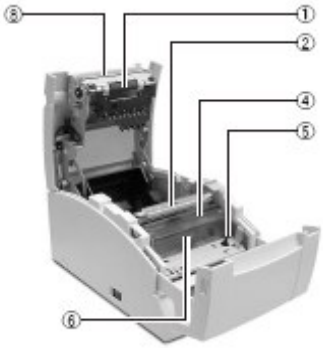
5 Power switch
It turns the printer power on and off.

6 Cutter lock clearing screw hole
When the rear cover cannot be opened because the blade of the auto cutter protrudes after a malfunction or as a result of a paper jam, turn this screw with a Phillips head screw driver to return the blade.

7 AC adapter case
This is installed only for the built-in AC adapter type.

## AC adapter type

### Standard and auto cutter equipped model




1 Platen unit
In the standard and auto cutter equipped models, it is combined with 8 the auto cutter.

2 Paper cut bar
It is used to cut the paper manually.

3 Platen open lever
It is a lever used to open the platen unit on the rewinder equipped model. Open the platen unit by pulling it towards you.

4 Print head cover

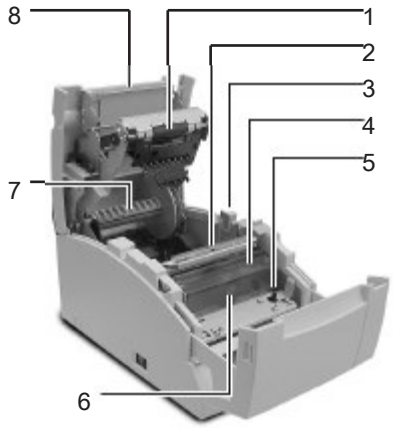
5 Ribbon cassette drive shaft

6 Print head

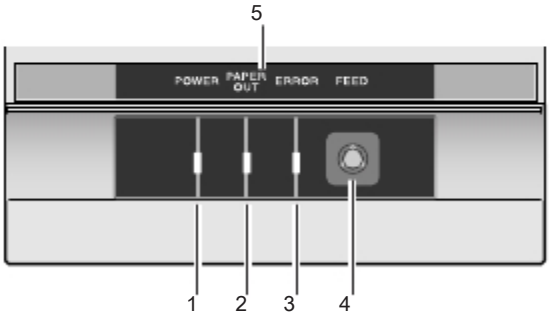
7 Rewinder shaft
It rewinds the copy side of the copy roll paper.

8 Auto cutter unit
It automatically cuts the paper after printing is completed. The cut action is set by a command in Soft SW Setting Mode.

### Auto cutter and rewinder equipped model



## Operation Panel




1 POWER LED (Green)
It is lit when the power is supplied. When maintenance mode is set or there is an error indication, it is either lit or flashing.

2 PAPER OUT LED (Orange)
It is lit in paper out status. When maintenance mode is set or there is an error indication, it is either lit or flashing.

3 ERROR LED (Orange)
It is lit when the rear cover or front cover is open. When maintenance mode is set or there is an error indication, it is either lit or flashing.

4 FEED Switch
When this switch is pressed once, paper feeds (1 line). If it is held down, paper feeds continuously until it is released. And when there is a printer error, pressing this switch can cancel the error status.

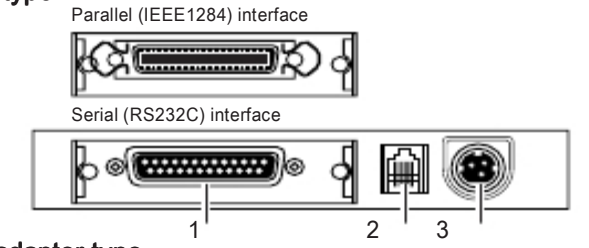
5 LED NAME SHEET
This sheet is used reversed according to the printer installation method. See Vertical Installation and Wall Mounted Installation (page 23).

Display when installed horizontally

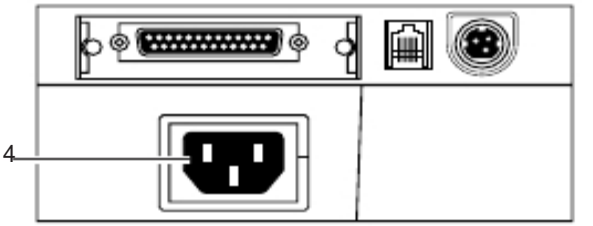
Display when installed vertically or wall mounted

## Rear Connectors

### AC adapter type




### Built-in AC adapter type




1 Interface connector
It is connected to either a serial (RS232C) or parallel (IEEE1284) interface cable.
* A USB interface replaced by a serial or parallel interface will be available as a factory option.

2 Drawer kick connector
It is connected to a cable from the drawer.

3 Power source connector
It is connected to a cable from the AC adapter.

4 Power source inlet
It is connected to the power cord.

## Others

### Built-in Buzzer

A buzzer sounds when the FEED switch is operated and when there is an error.
The buzzer can be switched between enabled and disabled in Soft SW setting mode.

### User Memory

Logo data or text data prepared by the user can be stored in memory.
This stored data remains in memory even after the power is turned off.

# Connections

## Connecting the Interface Cable

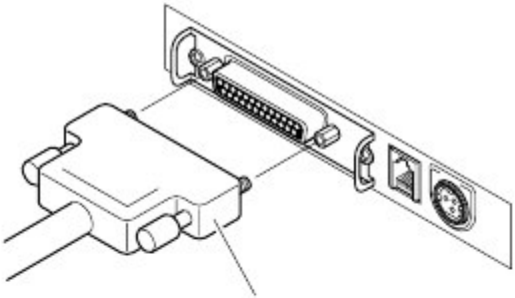
Turn off the power to the printer and insert the connectors being careful about their orientation.

### ⚠ Caution

Always hold the connector when pulling out a cable.
Install the interface cable so that it will not be caught on your shoes etc.

### Connecting the serial (RS232C) interface cable

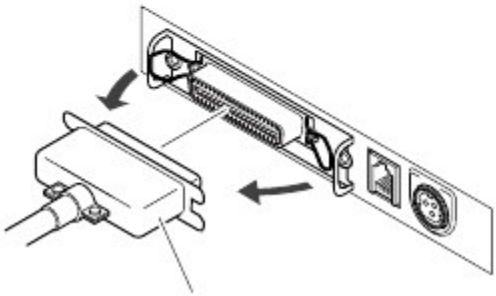
Make sure that you insert it firmly and fix it in place by tightening the screw.



Serial (RS232C) interface cable

### Connecting the parallel (IEEE1284) interface cable

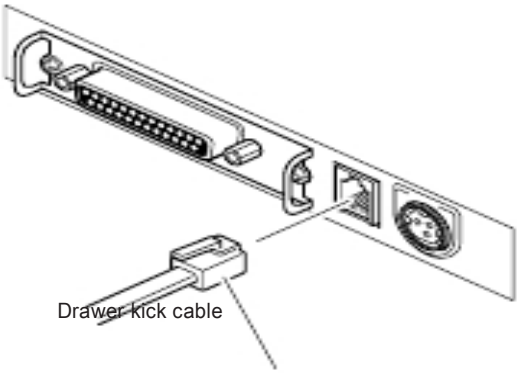
Make sure that you insert it firmly and fix it in place by turning the attachment screws in the direction shown by the arrow.



Parallel (IEEE1284) interface cable

## Connecting the Drawer

Match the top and bottom of the drawer kick connector with the cable terminal and insert it firmly until you hear a click.




## Caution

Connect only a specialized drawer. **(Do not connect a telephone line.)**

Output is impossible during printing.

Drawer 1 and drawer 2 cannot be driven simultaneously.

Use a drawer use solenoid that is at least 24&. Make sure that the output current is not higher than 1A. This may cause a malfunction or burn damage.

Install the drawer kick cable so that it will not be caught on your shoes etc.

## Connecting the Power

1. Make sure that the printer power switch is set to OFF.

2. If your printer is an AC adapter type, insert the AC adapter cable connector with its flat side upwards into the power connector on the rear surface of the printer.

   If your printer is a built-in AC adapter type, insert the plug on the power cord into the AC inlet on the back surface of the printer.

Flat side of the cable is up.

AC adapter type

### Caution

Do not use an AC adapter other than the stipulated product (Model 51AD).

Always hold the connector when inserting or removing the cable connector of the AC adapter.

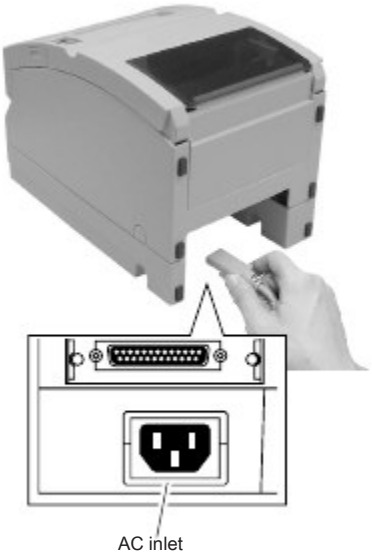
Stretching the power cord by pulling it will damage it, causing fire, electric shocks, or a break in the conductor.

When lightening is striking nearby, remove the plug of the power cord from the outlet. Lightening will cause fire or electric shock.

Do not place the power cord near a heating device. The cover of the power cord will melt, causing fire or electric shock.

When the printer will not be used for a long period, be sure to remove the plug of the power cord from the outlet to guarantee safety.

Isolate the AC power source from other devices that generate noise.




Built-in AC adapter type

# Installation

This printer can be installed horizontally or vertically and can be wall mounted.
But according to the model you are using, there may be restrictions on how it is installed.
Refer to the following table.

| | Horizontal | Vertical | Wall Mount | |
|---|---|---|---|---|
| Standard model (AC adapter type) | Yes | No | Yes*2 | |
| Standard model (Built-in AC adapter type) | Yes | Yes*1 | Yes*2 | |
| Auto cutter equipped model (AC adapter type) | Yes | No | Yes*2 | |
| Auto cutter equipped model (Built-in AC adapter type) | Yes | Yes*1 | Yes*2 | |
| Auto cutter and rewinder equipped model (AC adapter type) | Yes | No | No | |
| Auto cutter and rewinder equipped model (Built-in AC adapter type) | Yes | No | No | |

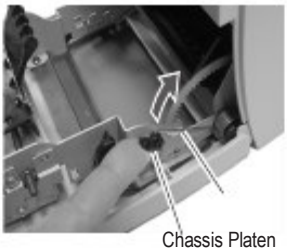
*1: Accessory rubber feet must be used to prevent slipping.
*2: The optional specialized wall mount unit is necessary to mount it on the wall.

## Vertical installation and wall mounted installation

To install the printer vertically or wall mounted, remove the Chassis Platen L Spring used to
open the rear cover. And reverse the LED name sheet on the operation panel to use it with the vertically installed and wall mounted display.

### Removing the Chassis Platen L Spring

1. Open the rear cover. Do this carefully, because the cover snaps open vigorously.
2. Lift part A with the fingers of your right hand.
3. Switch the Chassis Platen L Spring that you have raised from your right thumb to your left thumb to hook the protrusion on the end of the Chassis Platen L Spring inside part B of the printer.



**Caution**

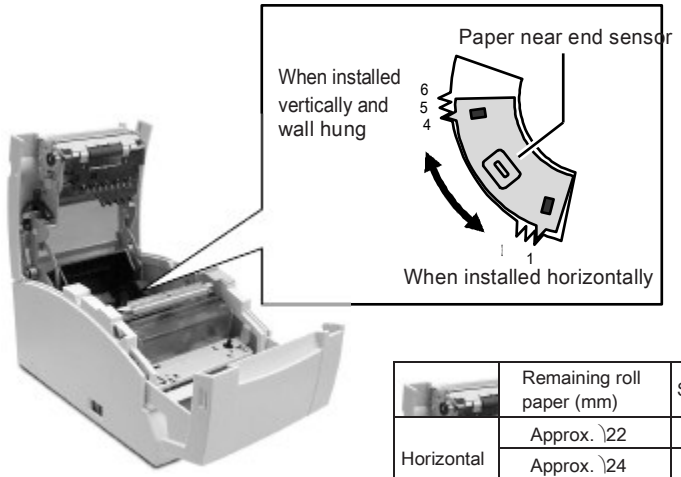
Chassis Platen L Spring with strong repulsive force is used. Be very careful that it does not slip off your finger causing an injury.

### LED Name Sheet

Remove and reverse the sheet then reinsert the protruding part of the center of the sheet in the printer and push in both ends.

# Setting the Paper Near End Sensor

Change the sensor location according to the way the printer is installed and the interior diameter of the roll paper you are using. Referring to the following table, set it at a location suited to the usage environment by moving it to the left and right while pushing the concave part of the center of the sensor with your finger. (When shipped from the factory, it is set at \24mm.)




| | Remaining roll paper (mm) | Sensor location |
|---|---|---|
| Horizontal | Approx. \22 | 1 |
| | Approx. \24 | 2 |
| | Approx. \27 | 3 |
| Vertical (wall mounted) | Approx. \27 | 4 |
| | Approx. \24 | 5 |
| | Approx. \22 | 6 |

## Caution

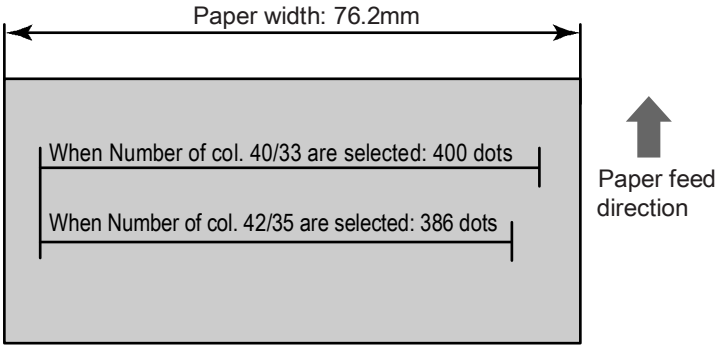
The remaining roll paper (external diameter of the roll paper) differs greatly according to the type of roll paper used. Use these values only as guidelines.
When the sensor has detected the remaining roll paper during printing, the printer stops printing after it has printed all the data that it had received.
If you are using a model with parallel (IEEE1284) interface specifications, you can select sensor enabled/disabled in Soft SW Setting Mode.
If you are using a model with serial (RS232C) interface specifications, it is always enabled.

# Setting the Paper Width and Printing Line Column Number

The printing dot line columns are changed as follows by setting the " Paper Width" of the roll paper used, the " Number of col." and the " Font Select" in Soft SW Setting Mode. For details about setting, see Soft SW Setting Mode (page 35).

## When setting Paper Width of 76.2mm

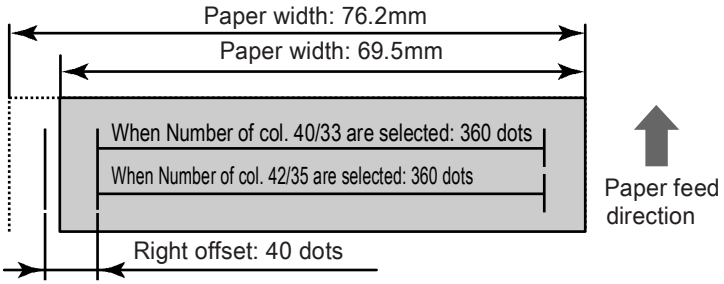
| Installation method | Remaining roll paper (mm) | Sensor location |
|---|---|---|
| Horizontal | Approx. \22 | 1 |
| | Approx. \24 | 2 |
| | Approx. \27 | 3 |
| Vertical (wall mounted) | Approx. \27 | 4 |
| | Approx. \24 | 5 |


Paper width: 76.2mm
When Number of col. 40/33 are selected: 400 dots
When Number of col. 42/35 are selected: 386 dots
Paper feed direction

### Setting Paper Width and Printing Line Columns

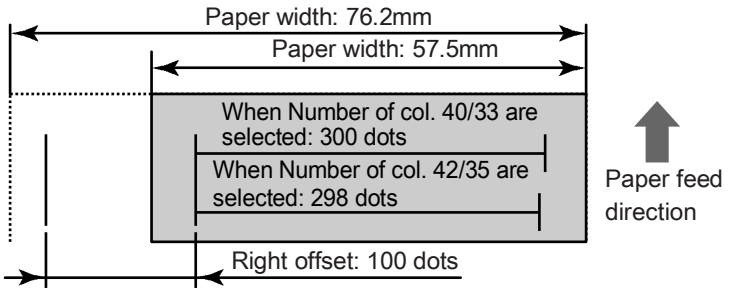
## When setting Paper Width of 69.5mm

| Installation method | Remaining roll paper (mm) | Sensor location |
|---|---|---|
| Horizontal | Approx. \22 | 1 |
| | Approx. \24 | 2 |
| | Approx. \27 | 3 |
| Vertical (wall mounted) | Approx. \27 | 4 |
| | Approx. \24 | 5 |


Paper width: 76.2mm
Paper width: 69.5mm
When Number of col. 40/33 are selected: 360 dots
When Number of col. 42/35 are selected: 360 dots
Paper feed direction
Right offset: 40 dots

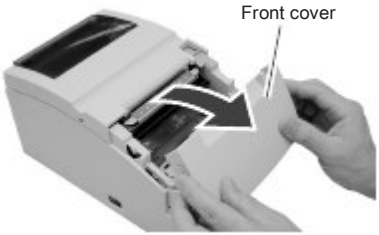
## When setting Paper Width of 57.5mm

| Installation method | Remaining roll paper (mm) | Sensor location |
|---|---|---|
| Horizontal | Approx. \22 | 1 |
| | Approx. \24 | 2 |
| | Approx. \27 | 3 |
| Vertical (wall mounted) | Approx. \27 | 4 |
| | Approx. \24 | 5 |

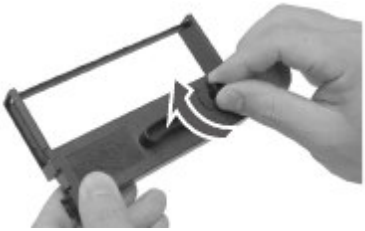

Paper width: 76.2mm
Paper width: 57.5mm
When Number of col. 40/33 are selected: 300 dots
When Number of col. 42/35 are selected: 298 dots
Paper feed direction
Right offset: 100 dots

# Installing the Ribbon Cassette

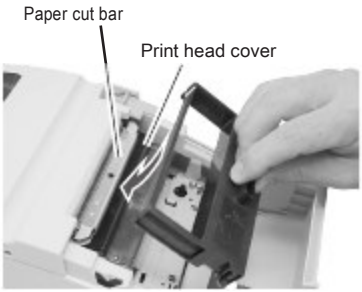
1. Open the front cover of the printer. Insert your fingers into the dents at opposite ends of the front cover to open it with both hands.



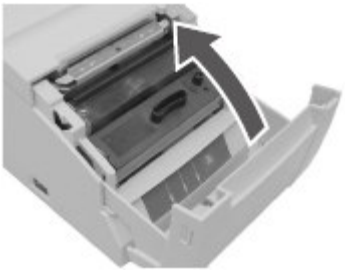

2. Turn the ribbon cassette knob in the direction shown by the arrow to fully stretch the ribbon.



3. Insert the cassette into the printer until a click is heard so that the ribbon is between the paper cut bar and the print head cover. If it difficult to insert, turn the ribbon cassette knob again.




4. Close the front cover.



## Caution

Be very careful not to let your hands touch the print head cover when replacing the ribbon cassette. When the print head has become heated, there is a danger of it burning your hand.

# Installing Roll Paper

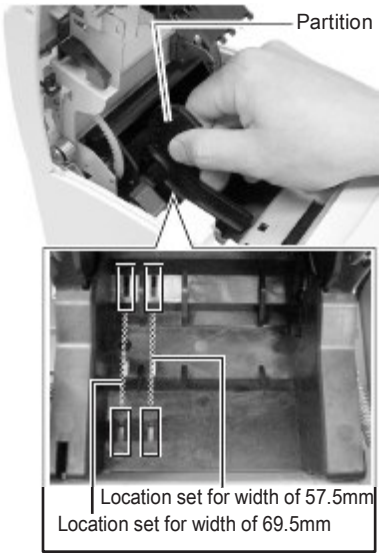
The following are the types of roll paper that can be used by this printer.
Types: 1P roll paper
2P copy roll paper (1 original + 1 copy)
3P copy roll paper (1 original + 2 copies)
(2P and 3P copy roll paper are only usable on models equipped with auto cutter and rewinder.)
Paper widths: 76.2 (±0.7)/69.5 (±0.6)/57.5 (±0.5)mm
Roll diameter: \30mm to \83mm
Core diameter: Interior diameter \10$^{+2}_{-0}$mm, exterior diameter \27mm or less
Paper thickness: 1P 0.06 to 0.085mm
Copy paper 0.05 to 0.20mm (total thickness)
But the total thickness that can be cut is from 0.05 to 0.14mm.

## Standard and Auto Cutter Equipped Models

### Installation method

1. Pull the rear cover open lever towards you to open the rear cover.

2. Set the attached partition in place if the roll paper you are using is 69.5mm wide or 57.5mm wide.
Change the paper width by changing the value set as the width using the Soft SW Setting Mode.
(See page 35)

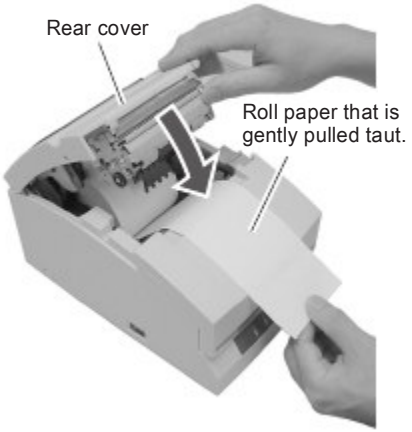



**Caution**

When setting the roll paper, be careful not to cut your hand on the edge of the paper.

3. Place the roll paper and pull the end of the roll paper directly towards you as shown in the figure.
Hold the center of the roll paper to pull it as straight as possible so that one of the sides of the paper does not slacken.

4. Maintaining tension in the roll paper, firmly close the rear cover until you hear a click.
Paper feeds automatically and stops at the print start position.




**Caution**

Be very careful not to let the rear cover catch your hands when closing the rear cover.

5. Tear off surplus paper by holding one side of the end of the roll paper and pulling it towards you.

**Caution**

Do not insert any foreign objects such as a paper clip into the cutter unit.

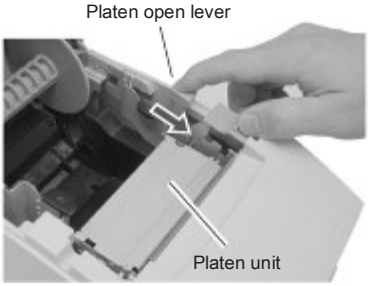
### Installing Roll Paper

## Auto Cutter and Rewinder Equipped Model

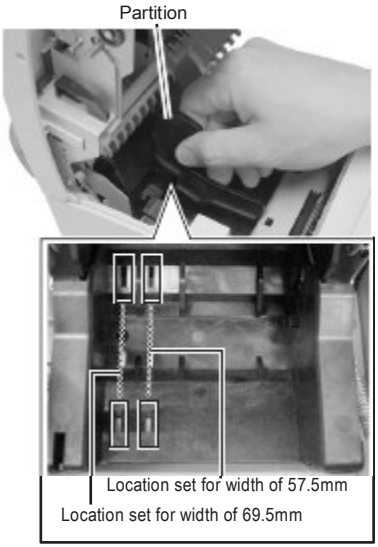
### Installation Method

1. Pull the rear cover open lever towards you to open the rear cover.

2. Then pull the platen open lever towards you to open the platen unit.



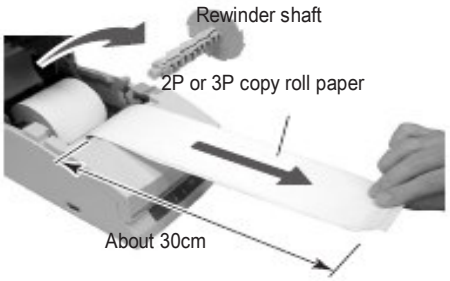

3. Set the attached partition in place if the copy roll paper you are using is 69.5mm wide or 57.5mm wide. Change the paper width by changing the value set as the width using the Soft SW Setting Mode.
(See page 35)




**Caution**

When setting the roll paper, be careful not to cut your hand on the edge of the paper.

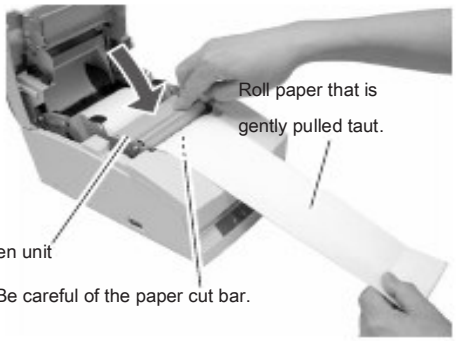
4. After removing the rewinder shaft, install the copy roll paper and pull the end of the roll paper straight towards you for about 30cm as shown in the figure.
Hold the center of the roll paper to pull it as straight as possible so that one of the sides of the paper does not slacken.



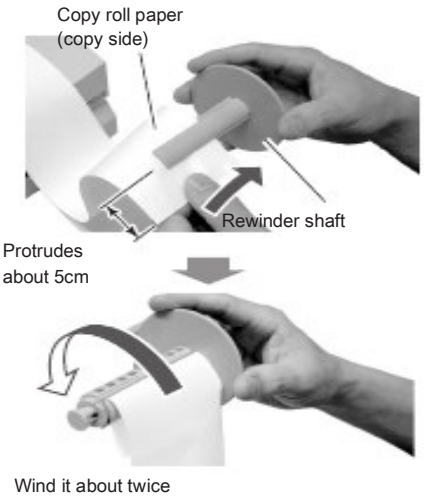

5. Maintaining light tension in the copy roll paper, firmly close the platen unit until you hear a click.

**Caution**

Be very careful not to let your hands touch the blade on the paper cutter bar.

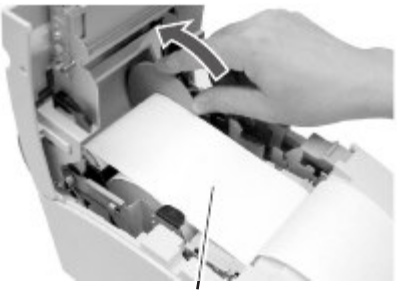



6. Set one side of the copy roll paper (copy side) on the rewinder shaft as shown in the figure, and tightly wind it about 2 rotations in the direction shown by the arrow.
Check to make sure that the copy roll paper rotates with the rewinder shaft.



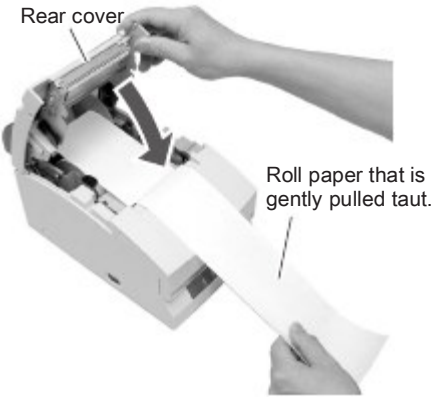
## Installing roll paper

7. Being careful not to let the copy roll paper set on the rewinder shaft slacken, place the roll paper in the grooves on both sides.
Turn the flange on the rewinder shaft in the direction shown by the arrow and make sure that the copy roll paper rotates with the rewinder shaft.



Taking up slack while checking that the copy roll paper winds.

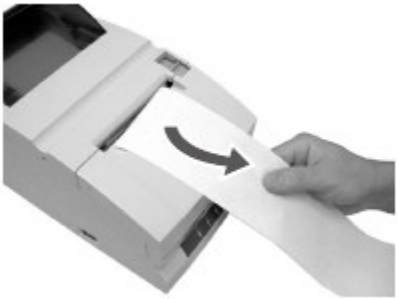
8. With the other side of the copy roll paper (original side) pulled lightly taut, close the rear cover firmly until you hear a click.
Hold the center of the roll paper to pull it as straight as possible so that one of the sides of the paper does not slacken.
Paper feeds automatically and stops at the print start position.




**Caution**

Be very careful not to let the rear cover catch your hands when closing the rear cover.

9. Tear off surplus paper by holding one side of the end of the roll paper and pulling it towards you.



**Caution**

Do not insert any foreign objects such as a paper clip into the cutter unit.

# Operation when the cover is opened and closed

## Operation when the front cover is opened and closed

Opening: During printing, the printing stops and if it is in red printing status, the ribbon is switched to the black ribbon status, moves to the centering location, and becomes the condition you can replace the ribbon cassette.

Closing: If it was red printing status when it was opened, the ribbon returns to red status and if there is printing data, printing restarts.

## Operation when the rear cover is opened and closed

Opening: During printing, the printing stops and the ribbon moves to the centering location and remains in stand by. On models equipped with a rewinder, if the cover is opened with paper set, the paper is fed forward about 1 inch then returns to the centering position.

Closing: After print operation and cut operation have been initialized, it performs paper feed check, and if there is printing data, printing restarts.

### Caution

If a cutter problem is caused by a paper jam etc., the printer may stop with the cutter blade protruding so that the rear cover cannot be opened. In this case, press the FEED switch to eliminate the cutter problem without trying to force it open. If the problem is not eliminated by pressing the switch, insert a screw driver in the hole on the left side surface of the rear cover and rotate it to manually restore the cutter blade, then open the cover. (The blade will be restored by turning it to either the left or the right.)

Be careful of the manual paper cut bar in particular, to make sure that your fingers are not caught when opening and closing the cover.

Opening the rear cover during printing causes malfunctions of the printer head or cutter unit. Make sure that printing has stopped before you open the rear cover.

To close the rear cover, close it while holding the end of the paper so that the paper is not slack or bent inside the printer.

# Maintenance Mode

The settings of the printer can be changed according to its usage environment in maintenance mode. And it is also possible to change their settings back to the initial factory shipping setting or to adjust the cut position after printing in this mode.
And the content of the settings can be confirmed in demonstration printing mode.
To change the settings in maintenance mode, print and check the present settings.

## Demonstration printing mode

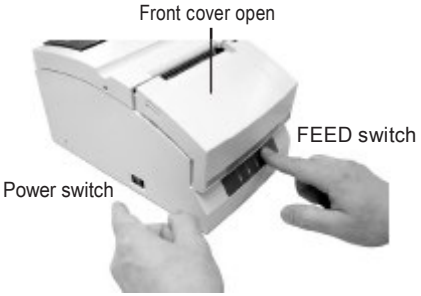
### Setting the mode

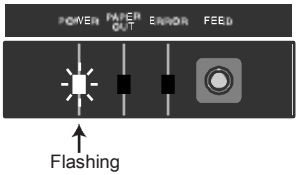
Turning the power on while pressing the FEED switch with the front cover and the rear cover both closed starts demonstration printing mode and the " demonstration printing and the present printing settings" are printed.

## Setting maintenance mode

1. Set maintenance mode by turning on the power while pressing the FEED switch with the front cover open and the rear cover closed, then releasing the FEED switch.

2. The POWER LED flashes as the printer enters maintenance mode.
Close the front cover in this status.




## Types of maintenance mode

There are the following four types of maintenance mode.
Each mode is selected according to the number of times the FEED switch is pressed from maintenance mode.

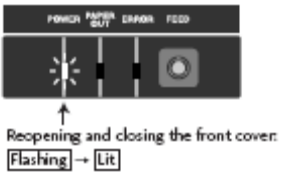
HEX Dump Mode: Press the FEED switch 0 times and reopen and close the front cover.
Soft SW Setting Mode: Press the FEED switch 1 time and reopen and close the front cover.
Initial Factory Shipping Mode: Press the FEED switch 2 times and reopen and close the front cover.
Cut Position Adjustment Mode: Press the FEED switch 3 times and reopen and close the front cover.

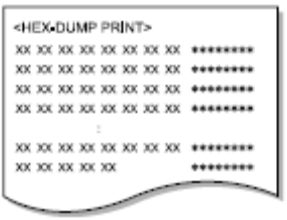
## HEX Dump Mode

### Setting the mode

If the front cover is reopened and closed in maintenance mode (POWER LED is flashing), the POWER LED stops flashing and remains lit, and the printer enters HEX Dump Mode.
After printing the title, it stands by to receive data.

To leave HEX Dump Mode, turn off the printer power then turn the power on again with the front and rear covers both closed.

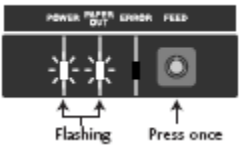


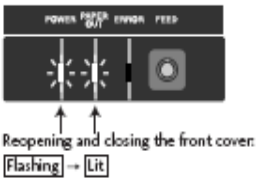

## Soft SW Setting Mode

### Setting the mode

1. If the FEED switch is pressed once in maintenance mode (POWER LED is flashing), the POWER LED and PAPER OUT LED start flashing.




2. If the front cover is reopened and closed in this status, the POWER LED and PAPER OUT LED stop flashing to and remain lit, and after the title and top items have printed, it enters Soft SW Setting Mode.



## Soft SW Setting Mode

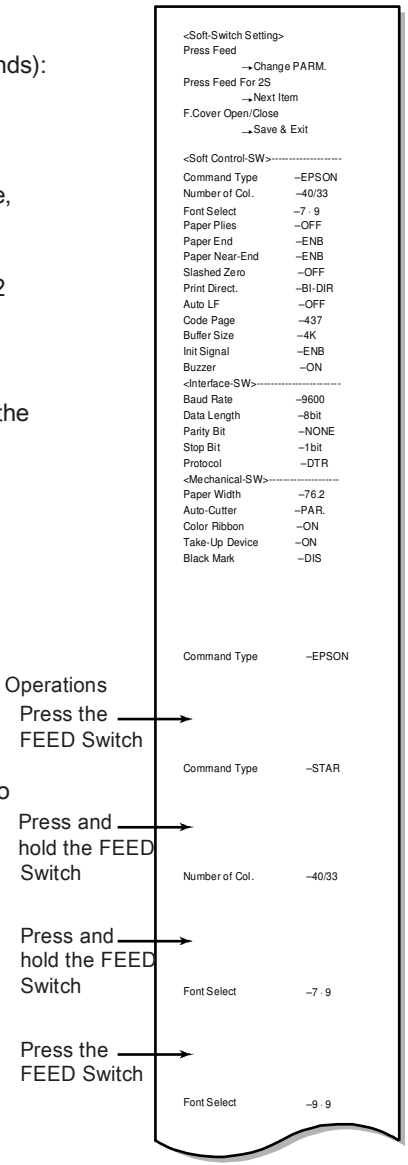
### Operating method

Press the FEED switch (less than 2 seconds):
The setting changes.
The present set value is changed and the same item is reprinted. (Press the FEED switch, and when the buzzer sounds once, release it.)

Pressing the FEED switch continuously (2 seconds or more):
Moves to the next item.
It prints the present set value of the next item. (Press the FEED switch, and when the buzzer sounds three times, release it.)

Opening/closing the front cover:
After saving the set values, it reprints all items from the top and returns to normal power on status.

* If the power is turned off without opening and closing the front cover, the setting change is invalid.
* If the paper runs out during the change, set the paper and close the rear cover to continue the process.




Example of a change of the Command Type to STAR and the Font Select to 9·9.

## Setting Mode Table

### Soft Control-SW

| Set item | Initial value | Setting value | Remarks |
|---|---|---|---|
| Command Type | EPSON | EPSON<br>STAR<br>CBM1<br>CBM2 | The emulation is selected from EPSON/STAR/ CBM1/CBM2. |
| Number of Col. | 40/33 | 40/33<br>42/35 | Number of full dot in full column is 200 dots. For the number of line columns based on the paper width, see " Setting the Paper Width and Printing Line Column Number". |
| Font Select | 7x9 | 7Ω9<br>9Ω9 | The initial font size is selected immediately after the power is turned on. |
| Paper Plies | OFF | OFF<br>2P<br>3P | Copy mode is selected.<br>OFF/2P/3P can be selected. But when 3P is set, the printing speed is low. |
| Paper End | ENB | ENB<br>DIS | The PE signal enabled/disabled is set at paper end when only the centro-interface is set as enabled. During enabled status, BUSY, PE, FAULT are output and printing stops at paper out. During disabled status, only BUSY is output and printing stops at paper out. |
| Paper Near-End | ENB | ENB<br>DIS | The PE signal enabled/disabled is set at paper near end when only the centro-interface is set as enabled. During enabled status, PE, FAULT are output and printing continues. During disabled status, nothing is output and printing continues. |
| Slashed Zero | OFF | OFF<br>ON | It sets whether or not slash is used with the numeral 0 (zero). |
| Print Direct. | BI-DIR | BI-DIR<br>UNI-DIR | Designates printing direction. When BI-DIR is selected, printing starts from the closer of the left and right ends of the next printing line from the print stop location. During UNI-DIR printing is usually done from the left end. |
| Auto LF | OFF | OFF<br>ON | The LF operation during CR code reception is selected. When ON, LF does not operate; when OFF, LF operates. CR: Carriage Return LF: Line Feed |
| Code Page | 437 | 437,<br>KATAKANA,<br>850, 860<br>863, 865<br>852, 866<br>857, 858<br>WPC1252 | The code page is selected. |

## Soft SW Setting Mode

| Set item | Initial value | Setting value | Remarks |
|---|---|---|---|
| Buffer Size | 4k | 40byte<br>4Kbyte | The receiving buffer size is selected. |
| Init Signal | ENB | ENB<br>DIS | Selects enabled (ENB)/disabled (DIS) of the printer initialized signal (PRIME) during centro-interface.<br>Selects enabled (ENB)/disabled (DIS) of the 25pin reset signal during serial interface. |
| Buzzer | ON | ON<br>OFF | Selects buzzer sound when an abnormality occurs as enabled (ON)/disabled (OFF). |

### Interface-SW (Displayed only when the serial board is mounted)

| Set item | Initial value | Setting value | Remarks |
|---|---|---|---|
| Baud Rate | 9600 | 19200<br>9600<br>4800<br>2400<br>1200 | Sets the baud rate of the serial interface. |
| Data Length | 8 bit | 8 bit<br>7 bit | Sets the character length of the serial interface. |
| Parity Bit | NONE | NONE<br>EVEN<br>ODD | Sets the communication parity of the serial interface. |
| Stop Bit | 1 bit | 1 bit<br>2 bit | Sets the stop bit of the serial interface. |
| Protocol | DTR | DTR<br>X-ON-OFF | |

### Mechanical-SW

| Set item | Initial value | Setting value | Remarks |
|---|---|---|---|
| Paper Width | 76.2 | 76.2<br>69.5<br>57.5 | Selects the paper size. |
| Auto-Cutter | PAR. | OFF<br>FREE<br>FULL<br>PAR. | Selects the cutter operation.<br>When it is OFF, the FULL/PAR. commands do not start cutting.<br>In FREE status, cutting is done according to the FULL/PAR. commands.<br>In FULL status, full cut is always done by both the FULL/PAR. commands.<br>In PAR status, partial cutting is always done by both the FULL/PAR. commands. |
| Color Ribbon | ON | ON<br>OFF | Selects the color function.<br>During OFF, the change color command is ignored. |

| Set item | Initial value | Setting value | Remarks |
|---|---|---|---|
| Take-Up Device | ON | ON<br>OFF | Selects the rewinder function.<br>During OFF, the rewinder motor does not operate. |
| Black Mark | DIS | DIS<br>TYPE1<br>TYPE2 | Selects enabled (TYPE1, TYPE2)/disabled (DIS) of the black mark control function.<br>In TYPE1 status, auto paper length measuring operation is done and the black mark is fed to the paper cut position when the power is turned on.<br>**GS FF/FF** commands are available in the status.<br>It is used for formatting the black mark at the edge of the page.<br>In TYPE2 status, measuring operation is not done when the power is turned on.<br>The auto paper length paper measuring, initial paper positioning and paper cutting operations are controlled by the command from a host PC.<br>**FS(L** command only is available in the status.<br>It is used for formatting the black mark in the middle of the page. (TYPE2 status is not available in STAR and CBM1/2 modes.) |

**Concerning Mechanical-SW operation**

Functions that are not supported by the specifications at time of shipping have no impact on printer operation even when the settings are changed.

**Examples**)Items set for the Auto-Cutter in models that are not equipped with an Auto-Cutter.

Change of the setting of the Take-Up Device in models to which rewinder specifications do not apply.

**Concerning Auto-Cutter operation**

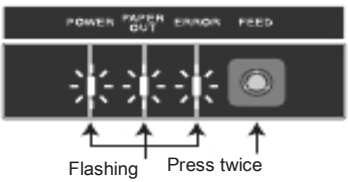
The minimum cutting interval is 1/2 inch (3 lines with 6LPI).

Once a cut command has been executed, even if a command is sent before the paper has fed at least 1/2 inch, the cut command is ignored so the cut action cannot be executed.

## Initial Factory Shipping Mode

### Setting the mode

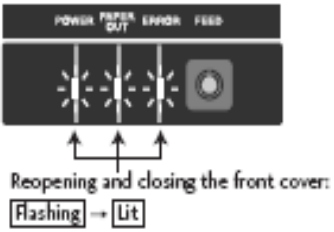
1. Pressing the FEED switch twice in maintenance mode (POWER LED is flashing) causes the POWER LED, PAPER OUT LED, and the ERROR LED to begin to flash.



## Initial Factory Shipping Mode

2. Reopening and closing the front cover in this status switches the POWER LED, PAPER OUT LED, and the ERROR LED from flashing to continuously lit status.

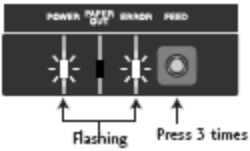
3. Pressing the FEED switch for 3 seconds or more restores settings to the factory shipping (initialized) status.



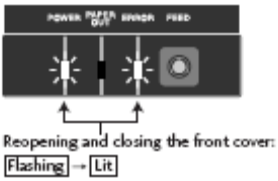

## Cut Position Adjustment Mode

### Setting the mode

1. Pressing the FEED switch 3 times in maintenance mode (POWER LED is flashing) causes the POWER LED and the ERROR LED to begin to flash.




2. Reopening and closing the front cover in this status switches the POWER LED and the ERROR LED from flashing to continuously lit status and enters Cut Position Adjustment Mode.

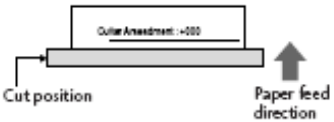



### Operating Method

Pressing the FEED switch (less than 2 seconds):
The present value is changed in units of ±1/144.

Opening and closing the front cover:
The ± of the adjustment direction changes. Immediately after entering adjustment mode, the value is changed in the + direction. Opening then closing the front cover changes the ± of the adjusted value.

Pressing and holding the FEED Switch (2 seconds or more):
The present value is saved and the printer enters normal power on status.




Adjustment range: −035 to +035
Initial value: +000

# Error Indicators

When this printer malfunctions or jams etc., the type of problem is indicated by a buzzer and by lit or flashing LED on the operating panel.
In error status, the error indication can be cancelled by pressing the FEED switch.

## Error indicator table

| Type of Error | LED indicator | | Operation and restoration method |
|---|---|---|---|
| Paper end | POWER<br>PAPER OUT<br>ERROR | Lit<br>Lit<br>Off | During printing, printing stops and the printer goes offline. Replace the paper and close the cover to return the printer online. |
| Paper near end | POWER<br>PAPER OUT<br>ERROR | Lit<br>○○●●<br>Off | In centro-interface, when the Paper Near-End on the Soft SW is set as enabled, PE, FAULT are output and printing continues. When it is set as disabled, nothing is output and printing continues. |
| Rear/front cover open | POWER<br>PAPER OUT<br>ERROR | Lit<br>Depends on status<br>Lit | During printing, printing is immediately stopped and the printer goes offline. Close the cover to restore the printer to online status. |
| Head hot | POWER<br>PAPER OUT<br>ERROR | Lit<br>Depends on status<br>○○●● | Cooling starts. After the temperature has fallen, it is automatically restored and printing restarts.<br>The buzzer continues to sound until the error is cancelled by the FEED switch. |
| HP abnormal | POWER<br>PAPER OUT<br>ERROR | ○○●●<br>○○●●<br>○○●● | The printer goes offline. Remove the paper jam or other problem and press the FEED switch to restore the printer to online status.<br>The buzzer continues to sound until the error is cancelled by the FEED switch. |
| Black mark abnormal | POWER<br>PAPER OUT<br>ERROR | ○○●●<br>○○●●<br>●●○○ | |
| Cutter abnormal position detection | POWER<br>PAPER OUT<br>ERROR | ○○●●<br>●●○○<br>●●○○ | |
| Hardware abnormal RAM read-write | POWER<br>PAPER OUT<br>ERROR | Off<br>●○●○<br>●○●○ | Turn off the power then turn it on again. If the error continues, notify the dealer where you purchased the printer or service personnel after turning off the power. |
| Hardware abnormal FROM read-write | POWER<br>PAPER OUT<br>ERROR | Off<br>○●○●<br>●○●○ | |
| 24V abnormal | POWER<br>PAPER OUT<br>ERROR | Off<br>Off<br>●○●○ | |

· There are no RS232C communication error or front cover opened/closed detection indicators.
· If the buzzer setting is OFF in Soft SW Setting Mode, the buzzer does not sound.
○ : Lit, ● : Off

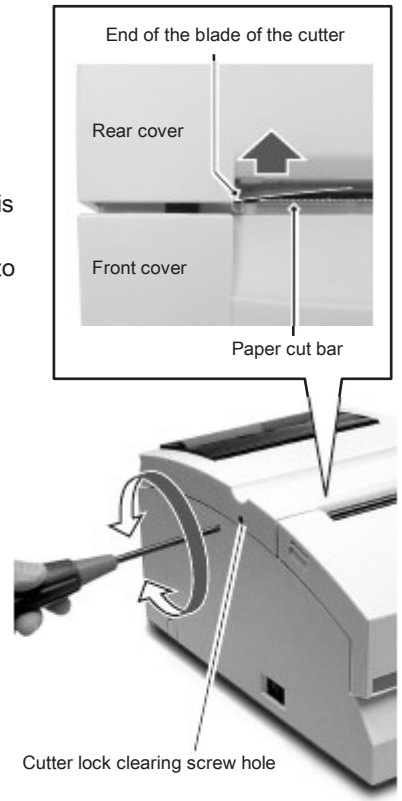
## Clearing a Paper Jam

### Clearing method

1. Turn off the power and open the rear cover.

   If the rear cover cannot be opened

   When there is a cutter problem, the printer may stop with the cutter blade protruding so that pressing the FEED switch fails to clear the error. When this happens, restore the cutter blade manually by inserting a screwdriver into the hole on the left side surface of the rear cover and rotating it, then open the cover (the blade will be restored whether you turn it to the left or right). Turn the screw driver so that the projections on both ends of the blade of the cutter are returned to the back of the printer (direction shown by the arrow).




2. Remove all the jammed paper (temporarily remove the roll paper that is installed in the printer).

3. Close the rear cover and turn on the power. The auto cutter operation will be initialized and the error cleared.

**Caution**

When removing the jammed paper, be careful not to touch the area around the print head nor the cutter blade. If you do you will be burned or cut.

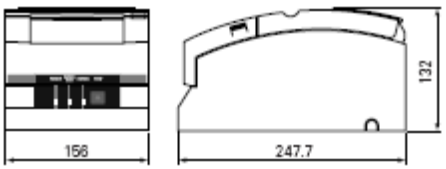
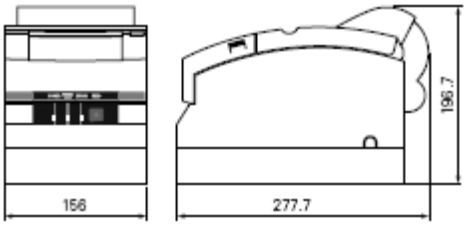
# Trouble Shooting

When there is trouble with this printer, take action to clear up the trouble according to the following table.
If this action does not clear up the trouble, notify the dealer where you purchased the printer or service personnel.

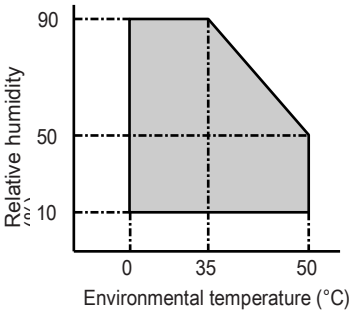
| | Symptom | Check | Action |
|---|---|---|---|
| 1 | Paper jam | Check for a jam at the paper ejection opening. If you cannot open the rear cover, do check number 2. | Remove all the jammed paper.<br>Remove the roll paper from the printer and put it back again. |
| 2 | Rear cover does not open | Check to see if the blade of the auto cutter is protruding. | Insert a Phillips screwdriver (+) into the cutter lock cancel use feed hole on the printer and turn it clockwise or counter clockwise. (Use a #1 screwdriver.)<br>Rotate the screwdriver while watching the paper ejection opening and stop turning it when both ends of the blade are fully retracted)<br>**Caution**<br>Do not try to force the rear cover to open. If you do, the printer will be damaged and you will be cut by the blade. |
| 3 | Ribbon does not feed correctly | Turn the knob on the ribbon cassette. | After turning the knob until the ribbon feeds smoothly, reset the ribbon cassette.<br>If you cannot turn the knob, the ribbon may be jammed inside the cassette. If the situation does not improve, replace it with a new ribbon cassette. |
| 4 | The paper is not cut | Check to make sure that the rear cover and front cover are closed. | If one of the covers is open, close it. If the paper still cannot be cut after you have closed the cover, notify the dealer where you purchased the printer or service personnel. |

# Specifications

| | |
|---|---|
| Printing mode | Serial impact dot matrix |
| Printing direction | Bi-directional |
| Head pins | 9 pins (⌀: 0.3mm, Pin interval; 1/72inch) |
| Printing line columns | Paper width of 76.2mm 40/42 or 33/35 columns<br>Paper width of 69.5mm 36/40 or 30/32 columns<br>Paper width of 57.5mm 30/33 or 25/27 columns<br>200/400 dots (full dot/including half dot) |
| Font configuration | 7Ω 9 or 9Ω 9 dots |
| Character types | ASCII (96 characters), International characters, Katakana<br>Code pages: 437, KATAKANA, 850, 860, 863, 865, 852, 866, 857, 858, WPC1252 |
| Panel/switches | 1 switch (FEED), 3 LED (POWER/PAPER OUT/ERROR), 1 buzzer |
| Printing speed | Printing: 240CPS (3P paper 200CPS)<br>Through-put: 76.2mm wide, 40 columns (7Ω 9+3sp, 6LPI) 5.0LPS<br>69.5mm wide, 36 columns (7Ω 9+3sp, 6LPI) 5.4LPS<br>57.5mm wide, 30 columns (7Ω 9+3sp, 6LPI) 6.0LPS |
| Paper feed | Friction feed<br>Minimum pitch: 1/144 inch<br>Paper feed speed: 40LPS (6LPI) |
| Paper | Types: 1P roll paper<br>2P copy roll paper (1 original + 1 copy)<br>3P copy roll paper (1 original + 2 copies)<br>* When 3P, printing speed falls 16%<br>Paper widths: 76.2 / 69.5 / 57.5 (±0.5)mm<br>Roll diameter: ⌀30mm to ⌀83mm<br>Core diameter: Interior diameter ⌀10 +2 −0 mm, exterior diameter ⌀27mm or less<br>Paper thickness: 1P 0.06 to 0.085mm<br>Copy paper 0.05 to 0.20mm (total thickness)<br>But the total thickness that can be cut is from 0.05 to 0.14mm.<br>* No glue on the core or end of the paper. |
| Ribbon | Method: special ribbon cassette<br>Colors: Single color (purple, black), 2 color (black and red)<br>Life: Purple, approx. 4 million characters (continuous printing at 25°C)<br>Black, approx. 3 million characters (continuous printing at 25°C)<br>Red/black, black 1.5 million characters, Red 750,000 characters |
| Interface | Standard model: 2 models, either RS232C or IEEE1284 |
| Emulation | ESC/POS (Page mode)<br>CBM mode, STAR mode |

| | |
|---|---|
| Data buffer | Receiving buffer: 40 or 4K bytes<br>NV bit image: 128K bytes<br>User NV memory: 8K |
| Features | Paper-drop-in style<br>Auto cutter function (full cut/partial cut)<br>Rewinder function<br>Black mark sheet compatible<br>Copy (2P/3P) paper compatible<br>DKD (Drawer Kick Driver) function<br>ASB (Auto Status Back) function |
| Power | Input: AC100V– 240V, 0.55A– 0.35A, 50/60 Hz<br>Power consumption: 24W<br>Standard model: 156(W) x 247.7(D) Ω 132(H) mm |
| External dimensions | Standard model: 156 (W) x 247.7 (D) x 132 (H) mm<br>  <br><br>AC adapter and rewinder equipped model: 156 (W) x 277.7 (D) x 196.7 (H) mm<br>  <br> |

## Specifications

| | |
|---|---|
| Printer weight | Standard model: 2.20kg<br>Auto cutter equipped model: 2.30kg<br>Auto cutter and rewinder equipped model: 2.45kg<br>But these exclude the AC adapter, AC case, ribbon, and paper. |
| Environmental conditions | During operation: Temperature 0 to 50°C<br>Humidity 10 to 90%RH (no condensation)<br>During storage : Temperature – 20 to 70°C<br>Humidity 5 to 90%RH (no condensation)<br>  |
| Durability | 7.5 million lines (MCBF)<br>Head lifetime 150 million characters<br>Cutter lifetime 1 million cuts |
| Applicable standard | UL, C-UL, FCC Class A, TÜV-GS, CE Marking, CCC |

## Ribbon Cassette

| | |
|---|---|
| Cassette shape | Single color specification, color (purple) : IR-31P<br>color (black) : IR-31B<br>Two color specification, colors (red/black) : IR-31RB |
| Lifetime | Single color specification, color (purple) : approx. 4 million characters<br>color (black) : approx. 3 million characters<br>Two color specification, colors (red/black):<br>red approx. 750,000 characters/black approx. 1.5 million characters |

Be sure to use a recommended ribbon cassette in order to maintain printing quality and stabilize printer operation.

## Paper

Use the following printing paper in order to maintain printing quality and stabilize paper feeding.

| | |
|---|---|
| Roll paper | Paper width: 76.2±0.7mm (3±1/36 inch)<br>69.5±0.6mm (3±1/36 inch)<br>57.5±0.5mm (2.26±0.02inch)<br>Roll diameter: \30mm to \83mm<br>Core diameter: Interior diameter \10 $^{+2}_{-0}$ mm, exterior diameter \27mm or less<br>Paper thickness: 0.06 to 0.085mm<br>Weight: 52.3 to 64.0 g/m$_2$ (JIS P8124)<br>(45 to 55kg/1,000 sheets/788mm x 1,091mm)<br>Recommended paper: Register paper (Oji Paper Co., Ltd.) or equivalent |
| Pressure sensitive paper | Non-carbon 2P/3P paper, 1 original + 1 copy /2 copies<br>Paper width: 76.2±0.7mm (3±1/36 inch)<br>69.5±0.6mm (3±1/36 inch)<br>57.5±0.5mm (2.26±0.02 inch)<br>Roll diameter: \30mm to \83mm<br>Core diameter: Interior diameter \10 $^{+2}_{-0}$ mm, exterior diameter \27mm or less<br>Paper thickness: 0.05 to 0.20mm<br>But the total thickness that can be cut is from 0.05 to 0.14mm.<br>Recommended paper: 2P NCR Super (Mitsubishi Paper Mills Limited) (prints in blue)<br>or equivalent |

Cautions concerning the roll paper
Starting to wind the roll paper (interior end) processing (with center core)
It must not be folded and its internal diameter must be even.
It must not be rolled back.
There must be no glue on its center core.
It must be wound with its printing side facing outwards.
When it is 2P paper, there must be no glue between the top and bottom sheets.
In the case of 3P paper, there must be no glue on the top, middle, or bottom papers.
Use pressure sensitive paper with total thickness no greater than 0.20mm and remember that the printer will not cut paper with total thickness greater than 0.14mm.
If you use pressure sensitive paper with total thickness greater than 0.14mm, either do not use the cutter or else rewind the bottom paper with the rewinder to reduce the total thickness (top paper + middle paper) to 0.14mm or less.

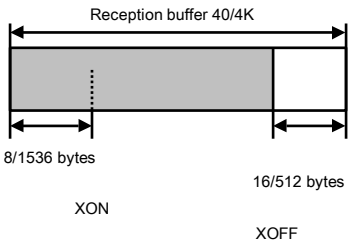
# Interface

## Serial (RS232C) interface

### Pin assignment

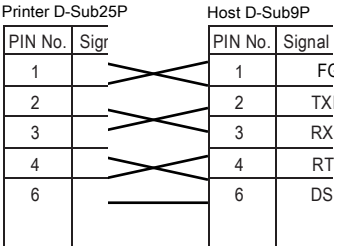
| | Signal Name | Direction | Function |
|---|---|---|---|
| 1 | FG | – | Frame ground |
| 2 | TXD | Output | Data transmission |
| 3 | RXD | Input | Data reception |
| 4 | RTS | Output | Same as DTR (20pin) |
| 6 | DSR | Input | Host reception enabled status HIGH-READY/LOW-NOT READY<br>[During DTR/RTS control]<br>The printer transmits data after it is confirmed that DSR is high.<br>(But transmission by DLE EOT, GS a)<br>[During XON/XOFF control]<br>Printer does not confirm DSR. |
| 7 | SG | – | Signal ground |
| 20 | DTR | Output | Printer READY/BUSY status HIGH-READY/LOW-BUSY<br>[During DTR/RTS control]<br>When the printer is in reception enabled status, it is READY, when it is reception disabled, it is BUSY. |
| | | | Printer status |
| | | | 1) BUSY until completion of initial settings when the power is turned on |
| | | | 2) BUSY in normal OFFLINE status |
| | | | 3) BUSY in OFFLINE status during PE |
| | | | 4) BUSY in OFFLINE status when other errors occur |
| | | | 5) BUSY when the reception buffer is full |
| | | | 6) BUSY during Self-Print |
| | | | [During XON/XOFF control]<br>Always HIGH-READY except under the following conditions<br>1) Until completion of initial settings when the power is turned on<br>2) During Self-Print |
| 25 | INIT | Input | Printer RESET (1ms or more is higher) |

### Buffer Full Control




Overrun/Buffer size: 16/512 bytes
XOFF cancel size: 8/1536 bytes

### Connection with HOST



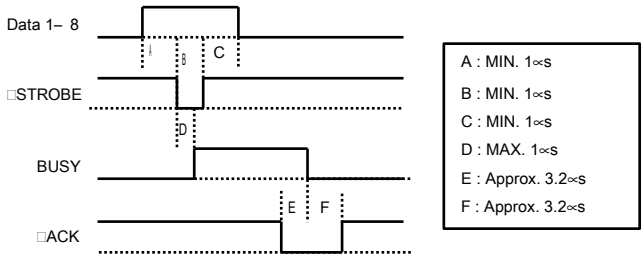
# Parallel (IEEE1284) Interface

## Pin assignment

| PIN No. | Signal Name | Direction | Function |
|---|---|---|---|
| 1 | FG | – | Frame ground |
| 2 | TXD | Output | Data transmission |
| 3 | RXD | Input | Data reception |
| 4 | RTS | Output | Same as DTR (20pin) |
| 6 | DSR | Input | Host reception enabled status HIGH-READY/LOW-NOT READY<br>[During DTR/RTS control]<br>The printer transmits data after it is confirmed that DSR is high.<br>(But transmission by DLE EOT, GS a)<br>[During XON/XOFF control]<br>Printer does not confirm DSR. |
| 7 | SG | – | Signal ground |
| 20 | DTR | Output | Printer READY/BUSY status HIGH-READY/LOW-BUSY<br>[During DTR/RTS control]<br>When the printer is in reception enabled status, it is READY, when it is reception disabled, it is BUSY. |
| | | | Printer status |
| | | | 1) BUSY until completion of initial settings when the power is turned on |
| | | | 2) BUSY in normal OFFLINE status |
| | | | 3) BUSY in OFFLINE status during PE |
| | | | 4) BUSY in OFFLINE status when other errors occur |
| | | | 5) BUSY when the reception buffer is full |
| | | | 6) BUSY during Self-Print |
| | | | [During XON/XOFF control]<br>Always HIGH-READY except under the following conditions<br>1) Until completion of initial settings when the power is turned on<br>2) During Self-Print |

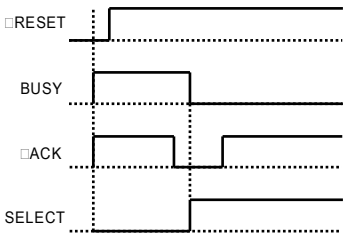
(*: Active Low)

## Data Reception Timing

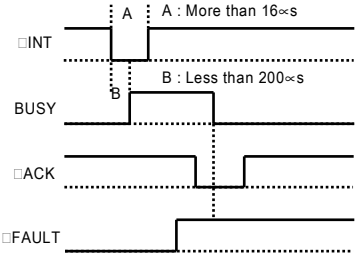


### Parallel (IEEE1284) Interface

#### Timing when power is on

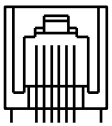



#### INIT signal timing



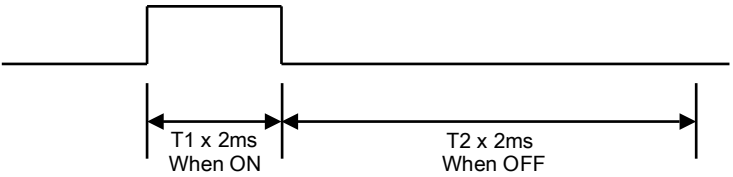

## Drawer Kick-Out Interface

### Pin assignment




| PIN No. | Signal Name | Direction | Function |
|---|---|---|---|
| 1 | FG | – | Frame ground |
| 2 | TXD | Output | Data transmission |
| 3 | RXD | Input | Data reception |
| 4 | RTS | Output | Same as DTR (20pin) |
| 6 | DSR | Input | Host reception enabled status HIGH-READY/LOW-<br>[During DTR/RTS control] |

The ESC pm t1 t2 commands select either Drawer Kick-out Signal 1 or 2 to set the pulse time.




**Note:**

- T2 (when OFF) ε T1 (when ON) &4 is satisfied.
- The maximum amperage at +24V is up to 1A. When connected to one that exceeds 1A, the printer and connected equipment may be damaged.